

**Meeting the methodological challenges of context and subjectivity in
information systems research**

**A report based on ongoing research on the dynamics of ICT driven
change processes in Kenya, a 'developing' country**

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Abstract

Information systems research in developing countries is limited by the absence of adequate frameworks to characterize their contexts, leading to preoccupation with IS project failure. A critical realist framework based on Archers social realism – the Morphogenetic approach – integrated with potential mechanisms for emergence derived from Complexity theory, is investigated as a framework to understand eGovernance change processes in Kenya. The complex discursive environment for ICT is characterized with Q methodology for triangulation to factor in operant subjectivity in the domain. Philosophically, the approach avoids positivist – interpretive biases, and is essentially abductive, calling for researchers to re-evaluate philosophical commitments in complex contexts.

Key Words: context, subjectivity, organization change, emergence, critical-realism, complexity-theory, Q-methodology, multi-methodology

Introduction

Bhaskar’s Critical realism has been proposed as a robust philosophy for IS research for it addresses both positivist and interpretivist concerns. (Bhaskar 1998) However, little has been done by way of practical research to test its efficacy, intellectual discourse has centred on controversies with dominant philosophies. These mainly arise from relative unfamiliarity with the scope of critical realist literature and potential weaknesses in its account of the ontology of social structure. (Cruickshank 2004; Mingers 2004a; Sayer 2000) These notwithstanding, it is argued that to adequately address context and inescapable human subjectivity in IS research, realist frameworks provide one of the best ways forward. We research in a developing¹ country (Kenya), where formal societal systems are expected to be less influential,

¹ The term “developing” is unfortunate in terms of origins and implications for equitable relations with the so-called developed states. Young (2001) prefers “Tricontinental” chosen in 1966 at the First Tricontinental Conference of the Peoples of Asia, Africa and Latin America held in Havana, Cuba. (Cabral 1966)

and contextual and agential aspects more pronounced to facilitate theory building. (Heeks 2002; Avgerou 2000) A multi-methodology approach is adopted as suggested by proponents of critical realism in IS research. (Mingers 2004)

1 Context, IS research and developing countries

Traditional IS research's focus on universal imperatives is at the expense of contextual richness. (Avgerou and Madon 2004) Large scale management change initiatives associated with information systems such as BPR, TQM and JIT fail often enough even in western contexts to query their wisdom, and has led to increase in qualitative IS research. (OECD 2001; Chen and Hirschheim 2004) More frequently, the driver for IS research in developing countries is the search for causes or reasons for failure to replicate successes in the west. Heeks (2003) estimates that 34% are total failures, 50% are partial failures and 15% succeed, a much failure higher rate when compared to Europe. With the public sector comprising an estimated 75% of the IT market in developing countries, such a failure rate is costly in direct and indirect costs, and in political fallouts with reduced capacity for future innovation. (Waema 1996; Heeks 2002b)

Developing country contexts are significantly different from western countries politically, socially, economically, technologically, and culturally. (Berman and Tetey 2001) Contextual effects and conflicts are more pronounced than in western environments, which are the predominant design sources, so research therein can inform failure theory and the understanding of IS contexts. (Avgerou and Madon 2004; Heeks 2004) Cultural difference was a popular way to explain difference in IS performance between developing and developed countries, but it has been shown to be subordinate to political economy as the dominant explanatory factor. (Korpela 1996) National culture was only moderately useful as an indicator of eGovernment readiness, (Kovacic 2005) and is only one aspect of the multiple rationalities that can exist in any context. (Avgerou 2000; Shoib and Nandhakumar 2003) Avgerou (2001) in fact considers IS innovation as part and parcel of social reform and contextualist analysis a necessary competence for practitioners.

1.1 IS context research

Context as a notion is problematic for it immediately implies some arbitrariness in boundary making of the study domain. Latour (2004:68) puts it pointedly: “As a rule, context stinks, it’s simply a way of stopping the description when you are tired or too lazy to go on.” Consequently, contextual studies should to the extent possible allow for emergence of the boundary of inquiry. (Merali 2002; Shoib and Nandhakumar 2003)

A universalistic approach calls for intentional action motivated by social change universals like emancipation, while the situated approach concentrates on meanings and interests, and on the construction of technological artifacts. (Avgerou and Madon 2004) Between these two extremes are many socio-technical combinations. (Pidd 2004) Since prescriptions are contingent on a host of unpredictable and uncontrollable factors, problems are persistent and outcomes are mixed, defying simple explanation. (Madon 1994; Lewis and Madon 2004; Puri, Byrne et al. 2004; Luna-Reyes, Zhang et al. 2005)

Considering the technology/social interface, technology by nature dictates the set of functions that it interacts with to ensure recurrence of order; otherwise it would not work effectively. (Kallinikos 2004) Accidents and the prevalence of technological difficulties show that it is not a smooth interface. Kallinikos further argues that the presence of technology necessarily constrains locally embedded agents because it is technically complex and must meet the need for institutional and functional interoperability; more so for large systems such as eGovernment and ERPs.

Technology therefore constrains and affects human behavior in ways that are not necessarily localized. For developing country eGovernment contexts, Heeks (2002b) distinguishes between deep and shallow inscribing designs. Deep inscription applications allow little improvisation and are *design-imposing*, while shallow inscription applications allow greater local improvisation and are *reality-supporting*. Appropriate IS approaches should therefore give sufficient consideration to both structural and situated effects. Though context may stink, its careful consideration is imperative for successful IS/IT interventions.

2 IS research in Africa

Four general approaches to IS research in Africa have been identified from the literature, all of which address project failure or limited success. First is an eclectic approach of earlier studies through case studies and surveys without an overarching integrative framework. (Odedra-Straub 1993) They were first attempts to characterize a new research area given the paucity of IS research in Africa even today. (Heeks 2002) Findings are presented predominantly in the negative “lack of” particular resources as reasons or causes for failure. But these were never there in the first place, so we cannot attribute causality, rather they are pointers to project conception and design weaknesses. The dominant positivist outlook is maintained by default, though many of its weaknesses are identified. The second is a risk management perspective exemplified by Heek’s (2003) ITPOSMO framework. Despite its empirical verification, it fails to engage local contexts by concentrating on design-reality context gaps; the design is evidently western; however the issue ought to be appropriate conceptualisation and design for *each* context. Though well intentioned, the unconscious retention of the western/other dichotomy with the west as aspiratory standard is regrettable. The third is even worse from a post-colonial standpoint. IS performance assumed to depend upon the ‘big man’ in a classic paternalistic bureaucracy. (Peterson1998) The ‘big man’ idea is a colonial construct that was designed to support indirect rule for stretched colonial powers, most African societies had complex socio-economic systems that are irreducible to the one dimension of autocratic power. (Coquery-Vidrovitch1988) Dominance by negative ICT discourses in developing countries such as ‘lack of’, compromises agents’ reflexive capacity. (Archer 2005)

Finally, in the interpretive tradition, Waema and Walsham (1990) and Walsham and Waema (1994) provide the first serious attempt to grapple with context. It brings to light many new insights within organizations. But apparently, the higher order contextual factors such as political economy (dependency and underdevelopment), historical and social formation, individual actors, organization of the domestic economy, and the heterogeneity of developing countries, defy inclusion. (Waema 1996) Bottom up contextualized theory building is seen in Korpela, Hanmer et al. (2005). Wilson’s (2004) rich contextual model of global ICT diffusion is broad and

draws from political economy. This research advances the analysis by attempting coherent integration through critical realism where we combine long-term structural change with situated action mediated by emergence and the notion of a stratified reality. For example IS researchers frequently reduce complex internal and external factors into advantages and disadvantages to inform strategic action. Archer (2003) argues that it amounts to treating constraints and enablements as intransitive, whereas they are transitive, requiring mediation by subjective agents. Even where these are rooted in 'hard' structure, adoption by agents is subjective and cannot be imputed to everyone. Reference to agential subjectivity, "however flawed" (pg. 134) becomes inescapable in discussing how structure conditions agency.

3 Research on the Transition to eGovernance in Kenya

Kenya is a young state that has at one time been classified as a quasi-nation state by Rivero (2001). As is common with many post-colonial states, external influence from former colonial masters, development agencies and aid organizations, meets with a largely rural population with different languages and cultures, and that has had varied experiences of violence, exploitation and suppression. (Young 2001) Leadership is in the hands of a small rapacious elite constantly engaged in power struggles, even with the introduction of multiparty democracy. Practically everything is subject to the capture of political power for each subgroup similar to the spoils system that existed in the US up to the 19th century. We reinterpret ongoing ICT change processes in the Kenya government within a Critical realist and complexity theory framework, in particular the interplay between participatory ICT policy development and eGovernance.

3.1 Research Design

To understand ICT driven change in such contexts, individual agency is integrated with the formation (not just transformation) of institutions of governance. Analytical histories of emergence for two government ministries shall be constructed using Archer's (1995) Morphogenetic approach from rich case study material. (Appendix 2) A Q methodology study to characterize eGovernment discourse in Kenya provides for richer understanding of actors behaviour.

3.1.1 Research Questions

1. On the subjective factors influencing e-Governance processes.
 - a. What is the composition of the pool of narratives that actors draw upon in making sense of their world as they participate in eGovernment projects in postcolonial developing countries?
 - b. Are there significant differences in the factors that shape actors operative subjectivity towards eGovernment projects in western countries postcolonial countries?
2. Transformation to eGovernance: In the light of factors in 1 above, carry out critical re-interpretation of eGovernment projects in a developing country.
 - a. What are the ascendant, dominant and declining ideologies in the discursive space for eGovernment?
 - b. What are their effects on the mediating role of human beings as manifested in emergence for:
 - i. Individuals;
 - ii. Groups;
 - iii. Culture;
 - iv. Structure?
 - c. What are the determinants of personal, corporate, cultural and structural emergence in eGovernment in Kenya?

Research question one is answered through the Q Methodology study while 2 is through the CR-Complexity framework combined with outputs from Q study as shown in Appendix 1.

3.2 Theoretical Framework

3.2.1 eGovernment and Organizational Transformation

Euro centric sociological theories generally provide the basis for IS research and methodologies. But Giddens' structuration theory and Habermasian discourse analysis have limited usefulness because they were conceived in historically different settings. (Jones, Orlikowski et al. 2004; Markus 2004) Structuration theory is not suited to societies where discourse is suppressed because of its amoral conception of praxis. (Cohen 1998) Some degree of normativity is necessary to address social

contradictions and extremities as found in post-colonies. Of primary importance are the need for *ontological recovery* and *visibility* for formally colonized peoples. (Goldberg 1996; Judy 1996; Stevens 1996) Secondly it should accept present *contradictions as real*, and the only starting point for a genuine future. (Serequeberham 1996; Mbembé 2001) Maldonado-Torres (2004:36) further insists that “A historical vision that combines time and space is needed” to correct for the west’s forgetfulness of coloniality. Western philosophies serve to sustain an historical amnesia that ensures invisibility for the oppressed, especially the formerly colonized.²(Goldberg 1996; Stevens 1996; Maldonado-Torres 2004) Alternative visions that allow us to explore imperial conceptions of space such as post-development from post-colonial theory are necessary

Critical approaches allows us to transcend dualism and technical rationality by giving access to the behavioral side of organization (Avgerou 2005) but should be balanced by giving appropriate weight to structures, actors and systems. (Mutch 2002) IS researchers have drawn on social theories that take into account both agency and structure such as Structuration Theory (Devadoss, Pan et al. 2002), Adaptive Structuration Theory (Ruel 2002), and Actor Network Theory (ANT) (Doolin and Lowe 2002) and complementary approaches (Shoib and Nandhakumar 2003). No specific studies been found based on Critical realism, but it is suggested as potentially a robust framework for IS research. (Dobson 2001; Mutch 2002; Panther and Rimenyi 2004)

Critical realism (or Social Realism) emphasizes ontology rather than epistemology. (Kivinen and Piironen 2004) It is ontologically well argued and more easily translates into a sociology that emphasizes explanation rather than description as for example Structuration Theory.(Dobson 2001) ANT is a possible avenue because it gives attention to both human and non-human interaction in their historical setting. But for intervention in a material world, critical realism is preferred; ANT is in practice too tied to textual analysis. (Mutch 2002) Secondly, ANT assigns equal ontological status to things and people, and fails to clearly distinguish between people as individuals and as social actors, greatly diminishing its analytical power in concrete social situations

² Even critiques of Eurocentricism are themselves Eurocentric. Foucault and Derrida are placed in this camp by Maldonado-Torres (2004)

with emergent effects. (Archer 1995; Mutch 2002) Critical realism is said to have emancipatory character, explicitly implying values, ethics and freedom from technological dominance. (Collier 1998; Klein and Huynh 2004) This is particularly important for this study given the socio-political contradictions of the postcolonial condition. As yet, there is no serious critique for the realist position, more common are efforts to fill in gaps in its abstract conception with insights from other methods. (Harvey 2002; Mutch 2002; Mingers 2004)

3.2.2 Development, Critical Realism and Complexity

Orthodox economic development theory has been criticized from complexity theory and critical realist perspectives for its linearity assumptions and ontological deficiencies. (Lawson 1997; Rihani and Geyer 2001; Rihani 2002) Critical realism allows us to link the discursive space with concrete outcomes in complex environments as shown in Morgan's (2003) linkage of the East Asian financial crisis with orthodox 'Washington consensus' economic policies. Orthodoxy itself was shown to be a constituent of social reality, and a causal factor in the collapse. A similar approach has been employed in the analysis of global poverty and to problems of economic development. Disentangling discourse and effects as reflected in social reality is necessary in developing country contexts due to their late incorporation into existing well-established systems of global governance.

Since their incorporation into management literature in the 1990's, complexity and chaos theories have yet to convincingly go beyond a fad. (Maguire and McKelvey 1999; Middleton-Kelly 2003) A realist view provides the basis for managerial awareness of transition and emergence that may lead to theoretically defensible insights. Such sociologically aware reading of complexity is less burdened by implicit technical rationality and moderates extremes in the use of complexity as a metaphor (Introna 2003; Lewin and Regine 2003).

Some argue strongly against the employment of complexity theory on the grounds that its mathematical/physical representation is ontologically incommensurable with social reality. (Introna 2003; Stewart 1999) But it can provide conceptual scaffolding for IS research if linked to an adequate philosophy. (Merali 2004) Complexity theory is thus a rich source of potential mechanisms for the microstructure of emergence, and

as a tool for managerial evaluation through agent based simulation modeling. (Merali 2004; Middleton-Kelly 2003) For example networks are a predominant structural form within society that easily generate complex behavior. Sudden change may imply that some systemic threshold has been transcended. (Walker and Meyer 2004) Presently there is little by way of empirical research in social complexity, debates along this line could be better informed by empirical findings. Critical realism is combined with complexity theory to form a reasonably good basis for IS theory development. (Byrne 1997; Byrne 1998; Harvey 2002) This research will use pattern matching to correlate analytical histories of emergence with complexity forms such as self-organization, adaptive tension, order creation path dependence and attractors. (Middleton-Kelly 2003) Henrickson and McKelvey's (2002) synthesis of complexity, transcendental realism and a postmodern ontology provides some direction.

3.2.3 *Agency, Discourse and Subjectivity*

Agent subjectivity is central to the evaluation of contextual effects. Subjectivity has been the bane of scientific enterprise since the renaissance. The compelling logic of Newtonian mechanics gave impetus to rational hypothetico-deductivism to at the expense of subjectivity leading to the rise of modern industrial society in Europe. In the post-industrial era of information and knowledge societies, the West looks to postmodernism to access its subjectivity and make sense of the kaleidoscope of new possibilities amid the anxieties of industrial collapse and global power erosion. (Webster 2002) Modern Africa on the other hand is wholly subjective if we go by Mbembe's (2001) description, he celebrates that complexity, for it is the only real starting point without relapse into some borrowed ideology such as Marxism. Extremes in regulation is characteristic of advanced societies that shocks visitors from young states, querying the whole idea of a freedom amidst the CCTVs and little room for human discretion. (Warah 2006) Hence to Amselle (2003), Europe's entrancement with Africa is born of aspiration to reconnect with a lost human vitality. The west has an ambivalent relationship with Africa as, "the image of a degenerate entity, which is also a source of regeneration". It experiences a "pleasant anguish" when speaking of Africa, here presented as primitive, virile and intellectually dependent.

On the other hand we have a new crop of African's, schooled or traveled in the west but assertive and self-affirming. Lacking direct experience of colonialism, they carry

no grand ideas about “independence”. They are proud, articulate and self–confident, but also realistic. It is from such that we find resistance to western discourses; not merely through letters, as did earlier postcolonial writers, but in concrete action marrying modern technology to local needs. (Aslam 2001) Researchers and writers in alternative development are articulating such thinking. (Biccum 2002; Escobar 1995; Matthews 2004) Others actively seek to reposition Africa’s image as that of a modern non-apologetic continent, decrying western “Exoticism”, following Edward Said’s Orientalism. (Honoré and Mezzana, et al. 2002; Oguibe 2002)

Globalization, the Internet revolution, cheap affordable ICTs and electronic media have created unprecedented opportunities for cultural synthesis and participation in social issues and governance. So when civil society and private sector associations challenge the state’s actions/decisions as has happened in Kenya’s ICT policy process, it is the historical tradition of detached governance, a left over from colonialism, under attack. (Irungu 2005; Munyua 2005) Such groups may be supported by western organizations but are not dependent on them. The discursive environment is dynamic and complex, with forward and backward movement on ICT issues depending on the immediate and broader context. For example, changing a Minister sets back progress for years if the new minister has other priorities. Enactment of new legislation to institutionalize change is contingent upon a parliament for whom ICTs are largely irrelevant to getting re-elected. Another factor is corruption, especially when linked to political power. Then, it is actually dangerous to oppose certain groups. It is interesting to note that many of the projects associated with grand corruption in Kenya recently were linked to ICT procurement, with a senior state official going into exile for personal security. (Munene 2005; Wikipedia 2006)

3.3 Q-Methodology: The Scientific Study of Subjectivity

Q-Methodology provides a scientific approach to the study of subjectivity with a unique approach to characterizing complex subjective social patterns. It is both qualitative and quantitative, and is demanding to appreciate and apply effectively. For this reason, proponents of R-Methodology opposed it vigorously for years, but that has been overtaken by its enduring strengths and unique value to researchers. Similar

to inference in critical realism, philosophically it is founded on C. S. Pierce's abductive logic. (Brown 1997)

The study of subjective issues using methods designed for the physical sciences or from abstract mathematical constructions necessarily leads to multiple perspectives, each of which is equally good; the question of validity and its criterion does not arise since there are no right or wrong personal opinions. Stephenson overcomes such limitations of the cognitive view of mind and subjectivity with the insight that it may be studied as "shared communicability". (Brown 1997) This was developed more fully as *concourse theory*, and forms the basis for the systematic study of subjectivity.

In practice, it involves obtaining a representation of a discursive environment in the form of opinion statements known as the Q set drawn from existing sources. These are printed on cards³ and presented to a selected representative group of people (P set) who then sort the cards self referentially within a forced distribution, based on the *condition of instruction*; each person's sort is a profile of their revealed subjectivity on the topic of interest. (Appendix 3) Through factor analysis, factors of "operant subjectivity" are then extracted. They represent dominant attitudes in the community of interest that are operant. The factors also capture contextual effects since each subject sorts the cards from their own point of view. (See Exel, J. v. and G. d. Graaf 2005 for a quick introduction).

Q methodology offers possible avenues for a synthesis of complexity theory and the social sciences (Hutchinson 2004), adds persuasion to critical and interpretive research by checking on unfounded speculations, and is a natural complement to critical realism. (Sherman 2005) For purposes of this research, identified operant subjective factors shall be related actual agents to understand the interplay of discourse, actions and real life outcomes in the eGovernance/ICT change process.

3.4 Progress to date

- 15 of 20 planned In-depth interviews undertaken within 2 government ministries, private sector, civil society and development agencies. Interview recordings are in process of transcription. After stage 1 analysis, further interviews, clarification and verification to be done in 2nd cycle.

³ Computer based sort tools are now available, some online making it much easier to administer.

- Documents and observations analysis in progress.
- Q sort done using 54 statements and 45 subjects. Data analysis in progress.

4 Conclusion

Critical realism is a promising basis for IS theory building in complex contexts. As a scientific physical theory, complexity provides a rational starting point to understand the structure of emergence and social stratification. IS Researchers need to re-evaluate philosophical commitments and seek ways to include agential subjectivity in complex contexts.

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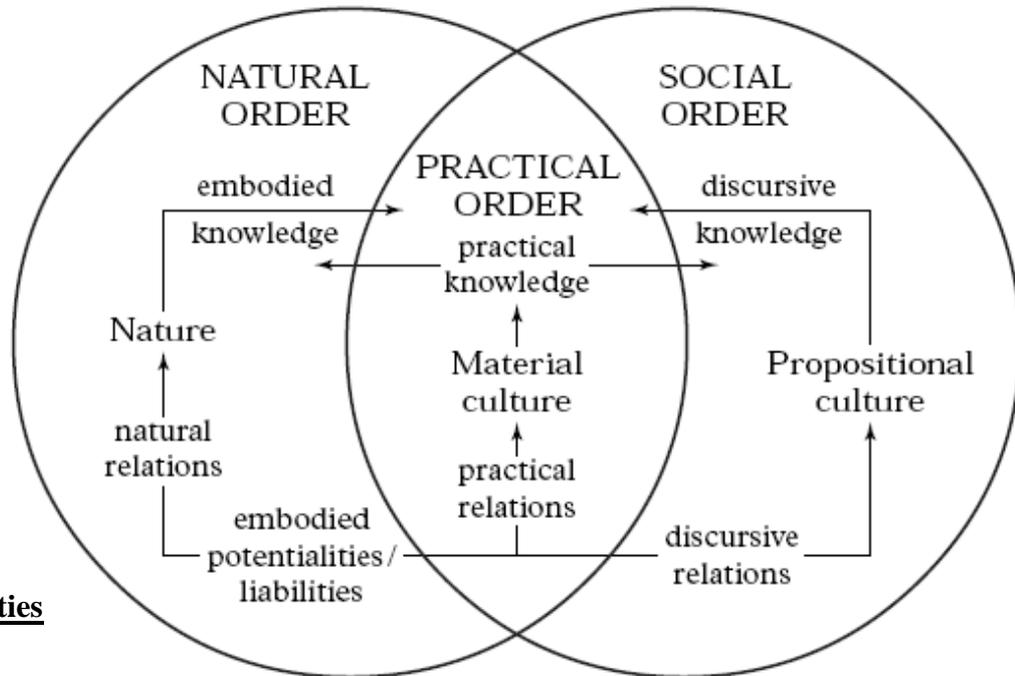
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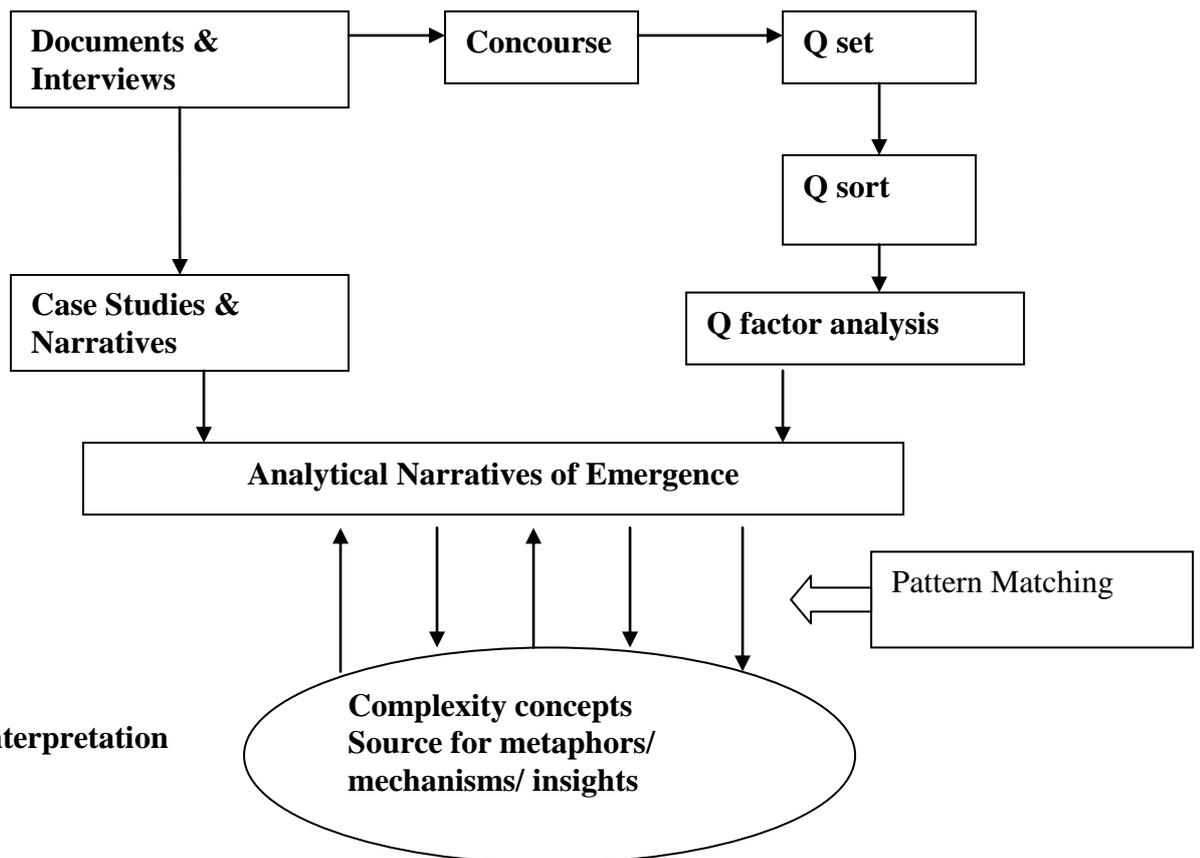
Appendix 1: Schematic Layout of Research Design

Based on *Three orders of reality and their forms of knowledge* (Archer 2000:162)



Research Activities

Data



Analysis & Interpretation

Appendix 2: The Morphogenetic Cycle

Corporate and Primary agency

Socio-cultural
conditioning of groups

T¹ (Corporate agency and
Primary agents)

Group interaction

T² (Between corporate agents and primary agents) T³

Group elaboration

Increase of corporate agents T⁴

Culture

Cultural Conditioning

T¹ Socio-cultural Interaction

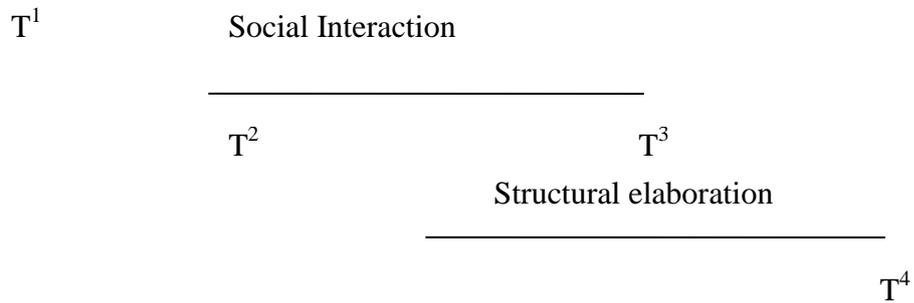
T² T³

Cultural elaboration

T⁴

Structure

Structural Conditioning

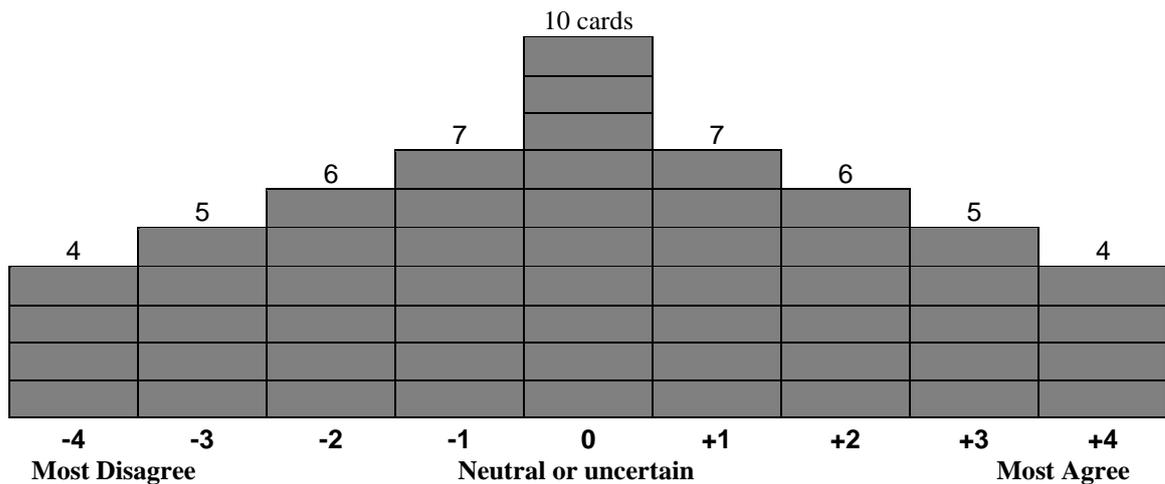


The diagrams above show Archer's Morphogenetic/static cycles for agency, culture and structure. The model is very similar to Bhaskar's TMSA (especially the adaptation by Harvey (2002) and Andrew Sayers's Methodological Realism. (Archer 1995) Agency is divided into primary (individual) and corporate (group) forms. Reality consists of personal, corporate, cultural and structural agency in a complex web of interactions, with emergent properties for each. But the heart of all agency and emergence is mediation by people as they shape the situation they find themselves in. Critical realism allows analysis in discrete time intervals to identify emergent changes in people, structure or culture and to ascribe subjective operant causes for material effects.

Appendix 3: Q Sorting Instructions

Transition to E-Governance in Kenya: Q sorting exercise

- Please begin by reading through the statements to familiarize yourself with them. As you do this, sort the cards into three piles:
 - Place to the *right* those with which you *agree* (+),
 - to the *left* those with which you *disagree* (-), and
 - in the *middle* those about which you are *neutral, ambivalent, or uncertain*.
- Once you have sorted the cards into three piles, now return to the cards with which you agree, on your right. Matching the distribution displayed below, select the 4 with which you most strongly agree, placing them on the far right (+4). The order of the items within the markers is not important.
- Turning to the cards in the “disagree” pile, again select the 4 with which you most strongly disagree and place them to the far left (-4). Again, the sorting should match the diagram below, and the specific order does not matter.
- Return to the remaining cards in the agree pile and select 4 more that you most agree with and place above the appropriate marker for degree of agreement. Work your way towards the middle by alternately selecting 4 cards from the right and the left, and placing them appropriately according to your degree of agreement or disagreement. The specific order within the markers is not important.
- Finally, sort the cards in the middle (0), those with which you were neutral, ambivalent, or uncertain.
- Review the card sort, and feel free to move or switch cards to most accurately reflect your personal point of view. There are no right or wrong positions, just make sure they reflect your own considered opinion.



Please feel free to ask any questions. Thank you very much for your participation.

Muranga Njihia
 Warwick Business School
 University of Warwick

DATA SHEET: Transition to E-Governance in Kenya: Q sorting exercise

Personal details

Name (Optional): _____ **Organization:** _____

Managerial Level: Senior ____ Middle ____ Junior ____ **Sex:** Male ____ Female ____ (Tick one)

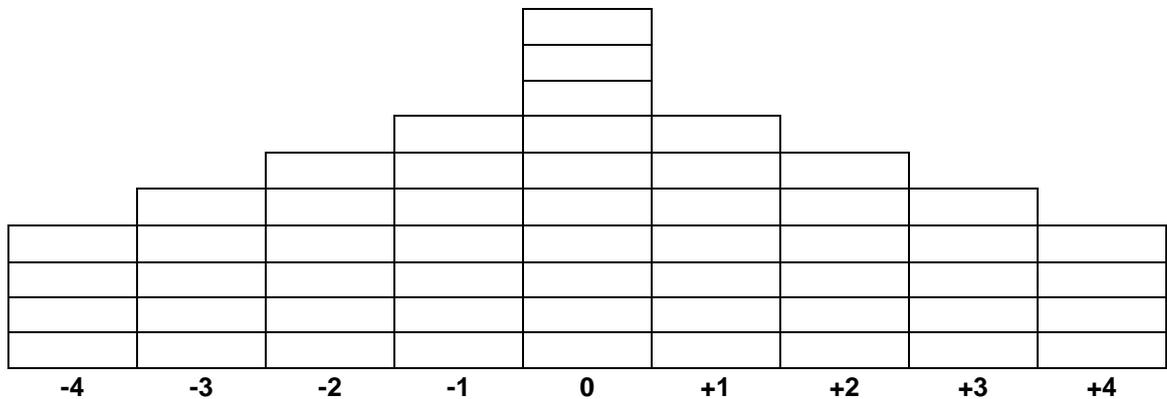
Age: Below 30 years ____ 30 to 45 years ____ Above 45 years ____

Location: Tick appropriate

Public Service	
Private sector	
Civil society	
Academia/ Consulting	
Development agency	

Score Sheet

Please record the number of each card in the final sort in its corresponding position on the chart below.



Post interview questions

1. How would you describe your experience of sorting the cards?
2. Explain the extreme (-4, +4) and any unusual or unexpected cards positioning. (Will vary from one person to another)
3. In your opinion, shall Kenya be an information society by 2030 as envisioned by the NESC (National Economic and Social Council)? Explain.

(Write answers in the space below)

Post interview questions – Responses

1.

2.

3.